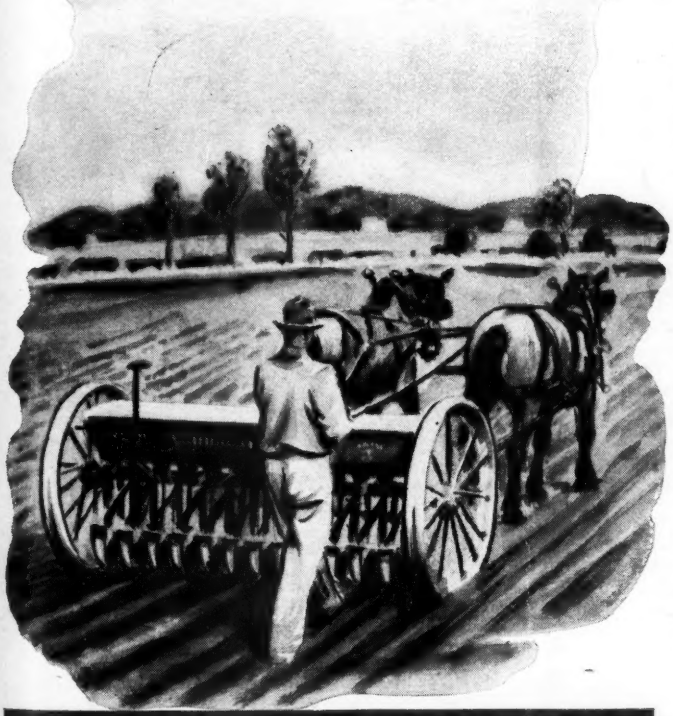
# The American FERTILIZER



## ARCADIAN arrives in time!



BARRETT NITROGEN SOLUTIONS
DOMESTIC SULPHATE OF AMMONIA
ARCADIAN*, THE AMERICAN NITRATE OF SODA

AS A RESULT of the cooperation of fertilizer manufacturers, dealers, agents, and farmers, Barrett is happy to announce that Arcadian, the *American* Nitrate of Soda, has been moving rapidly from factory to farm. The shipping curve has been flattened and Arcadian is now available over a large territory for early top-dressing of winter grain.

To Arcadian customers and consumers who at great inconvenience to themselves are cooperating in this wartime service, Barrett extends thanks.

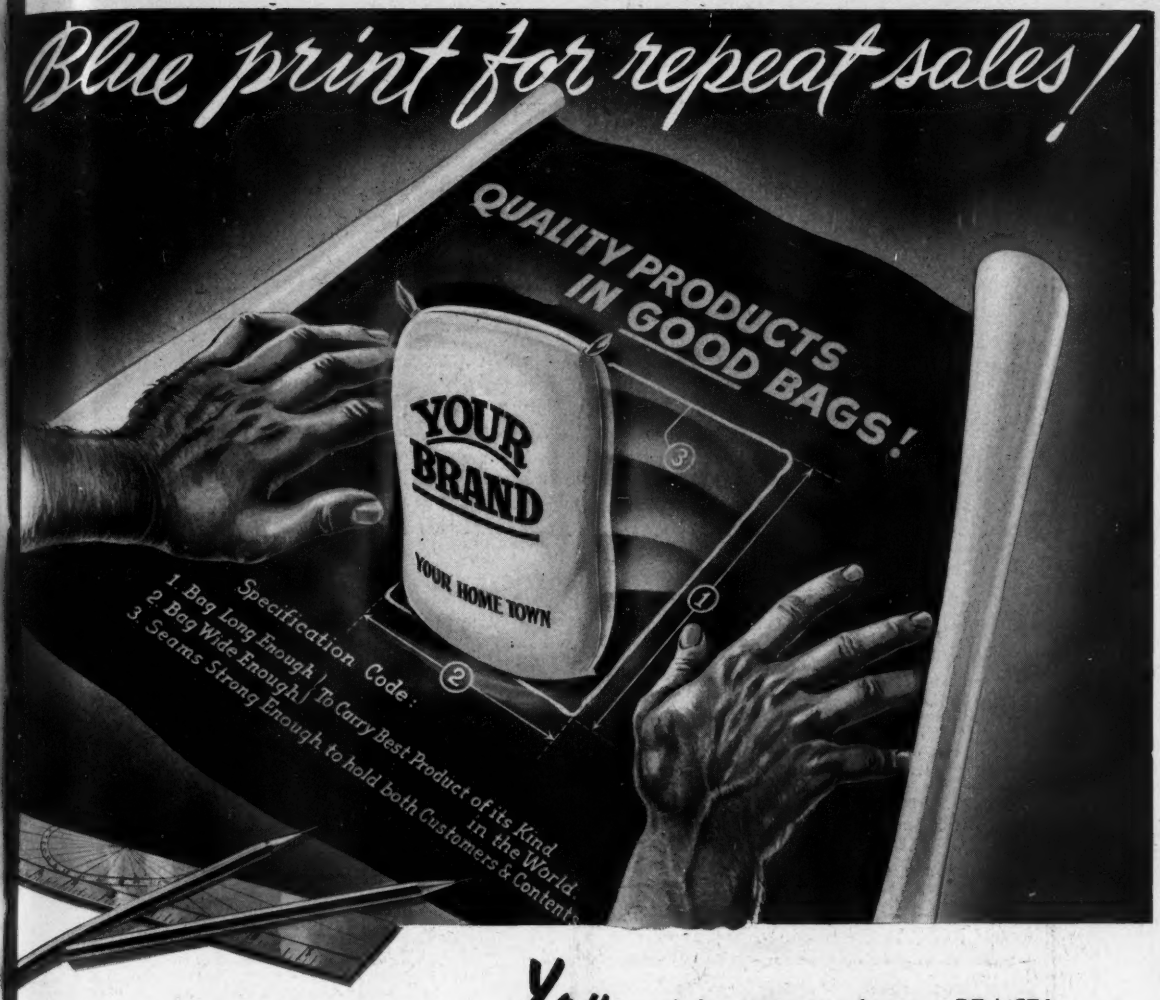
**THE BARRETT DIVISION**
ALLIED CHEMICAL & DYE CORPORATION

NEW YORK 6, N.Y. ATLANTA 3, GA. MONTGOMERY 4, ALA.
HOPEWELL, VA. COLUMBIA 56, S. C. SAN FRANCISCO 5, CAL.

Barrett NITROGEN

***HEADQUARTERS FOR AMERICAN-MADE NITROGEN***

Published every other Saturday. Annual subscription: In the United States, $3.00; Canada and Mexico, $4.00; other countries, $5.00. Entered as second-class matter, January 15, 1910, at the Post Office at Philadelphia, Pa., under Act of March 3, 1879. Registered in United States Patent Office. Publication office, 1330 Vine St., Phila., Pa.




**You** won't be reconverted, come PEACE!

Fertilizer Manufacturers will have *all* their old customers plus *new* accounts. The dealers are impressed with your high quality products and timely deliveries. Identify yourself so distinctively that the public can ask for your products by name—come PEACE! For repeat sales, for better business tomorrow, pack your fertilizer in *MENTE'S GOOD BURLAP AND COTTON BAGS!*

**IT'S BETTER TO BUY BONDS THAN TO WEAR THEM!**

# MENTE & CO., INC.

I. T. Rhea, President and General Manager

NEW ORLEANS HOUSTON SAVANNAH

*See page 25*

...THE...

# AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 102 FEBRUARY 10, 1945 No. 3

# Farm Production Supplies for 1945*

By FREDERIC B. NORTHRUP

*Director, Office of Materials and Facilities, War Food Administration*

THIS is my first public statement since the Germans started their big counter-offensive in December. Obviously, that occurrence has not improved the outlook for farm production supplies. Their big push came at a critical time in the farm supplies production year. Their action has re-emphasized military production during the period when agricultural supply industries are trying to get their products ready for spring and summer use.

In common with many other people, I hoped last fall that 1945 would be the last year in which the Government would have to control the production and distribution of materials and equipment needed in the war food program—that is, all but a few items. It is clear now that we're in for a tight squeeze.

Transportation problems will undoubtedly reach a new peak. The Office of Defense Transportation, which is the claimant agency for trucks, recently pointed out that the approved truck production program will provide less than a fourth of the new trucks that are estimated to be essential. Production of light trucks, which are especially important to farmers, is authorized at about 12 per cent of ODT's estimated requirement. The shortage of heavy truck tires will also handicap our transportation of farm commodities. We'll probably get some more surplus Army trucks but we can't predict or count on any particular number.

The drafting of more young men from farms will make the farm machinery problem more difficult in at least two ways. These young men of draft age are often the most capable machinery men on the farm. They know how to operate it and how to maintain it. Furthermore, their strong backs will be missed. Labor-saving machinery will be needed to take their place—that is, to enable the older and younger people to do more work.

During the war we have greatly increased the production of some of the most important labor-saving machines: side-delivery rakes, pick-up hay balers, corn pickers, and milking machines. Also, last year's production of combines, manure spreaders, wheel-type tractors, and many other important machines, compared favorably with pre-war years.

All told, we got about the same quantity of farm machinery for use in the 1943–44 farming year as we had in the year of 1941, which was a record year in production up to that time. In addition we had record supplies of parts for use in maintaining farm machinery. Some people had trouble getting the right part at the right time, but from all I can learn, there was little if any loss of production due to shortage of parts.

The farm machinery outlook for the current production year is a little bit complicated to explain without using a lot of charts and taking a lot of time. But here it is in general terms, compared with last year. The machinery that came off the line in 1943–44 was authorized under two different programs. One was the program for that year, and one was a program for completing machinery authorized but not completed in the preceding year. The program for 1944–45 is about the same as for 1943–44, minus that L-170 carryover authorization. Now that would seem to

*Parts of an address before the National Committee or Farm Production Supplies, Chicago.

mean we would get less machinery, in total. But remember that much of that made last year was late and will be used for the first time this year. Furthermore, we have anticipated that with manufacturers operating at a faster clip at the beginning of the program, they would be able to complete this year's program on time. Boiled down, this has seemed to mean we would get about the same amount of new machinery for use this year as we had last year.

**Production Behind Schedule**

Unfortunately, the machinery is not coming off the lines as fast as most informed people expected. It's true that at least some of the manufacturers scheduled heavily for the early part of the production year in order to take on more work if possible. At last report, tractor production was approximately up to schedule. Spring tools and some other items requiring heavy use of castings were running behind. Farm machinery in general —with the exception of tractors—was running 20 to 25 per cent behind schedule.

A lag of this proportion, coincident with a demand increased by the tightening farm labor supply, may mean a serious pinch on farm machinery this year. I hope this view is too pessimistic, but the wise farmer will check over and repair every old machine he can possibly keep in operation. You will be doing a service to your members if you will encourage them to do this checking and repairing while they have time.

**Labor-saving Machinery Favored**

Manufacturers are turning out another big supply of parts, and there should be enough to go around. In the past there has probably been some over-buying of parts. But since there has been no advantage in over-buying, I don't believe the tendency will increase—particularly if we all understand that the outlook for parts is good.

While we're talking about farm machinery, let me tell you about the lines that are being emphasized in the program. There have been some shifts in emphasis this year.

If you will look back over the wartime machinery programs, you will see that we have constantly emphasized labor-saving machinery. Wartime production of some of those machines has far exceeded pre-war production. Of course emphasis on those types has meant de-emphasis of other types. This year we're starting to take up the lag on some of the planting, fertilizing and tillage equipment—such items as corn and cotton planters, listers, potato planters, beet and bean drills, endgate seeders, fertilizer distributors, tractor plows and cultivators, disc harrows, walking cultivators and rotary hoes.

This is not a drastic change. Labor-saving machines for harvesting and haying are still recognized as our greatest need, but the planting, fertilizing, and tillage equipment I mentioned will take a bigger share of the authorized material than in our past programs.

As to tractors: Last year we got around 180,000 wheel tractors, including 30,000 through the carryover authorization. This year, as the situation looks now, we'll get between 150 and 160 thousand. We probably won't have any more new crawler tractors than we had last year because of large military requirements.

Well, that's the farm machinery picture. To hit the high spots again: This year's program is about the same as last year's *program* but less than last year's total production. Labor-saving machinery is again emphasized. But production of many items is running considerably behind schedule. Care, share and repair will be essential once again.

We'll have fewer milk cans but probably enough to meet farmers' needs. Demands were especially high during the days when many farmers were just beginning to market whole milk for drying plants. There won't be so many new plants in 1945.

**The Fertilizer Situation**

The last of the big groups of farm production supplies in this report is fertilizer.

As you undoubtedly know, prospects for nitrogen and superphosphate have been going down, due to military demands for some of the materials used in fertilizer production. Of course we expect to have more nitrogen and superphosphate than we used in the pre-war years of 1935–39—60 per cent more nitrogen and 53 per cent more super. But we'll have perhaps 10 per cent less nitrogen and 7 per cent less super than we had last year. Potash is better. We'll have nearly twice as much as we used in the years just before the war and 20 per cent more than last year. That brings our total supply of commercial plant food to about the same tonnage as last year. But the tonnage of approved grades high in nitrogen will be lower. We'll have less superphosphate for straight use. The approved grades high in potash content should be more abundant.

(Continued on page 30)

# A Study of the Efficiency of Borax Applications Upon the Yield of Tomatoes on Two Soil Types[1]

By J. B. HESTER AND F. A. SHELTON[2]

A REVIEW of the literature reveals that a tremendous interest has been created by the spectacular results obtained by the small amount of borax used in the production of crops (*1*, *2*, *5*, *6*).* It further shows that a large number of factors influence the efficiency of added borax upon crop yield; again, that the amount of borax that may be toxic to plants varies markedly for varying conditions. In 1938 (*3*) it was pointed out that boron may be a factor in commercial tomato production and again in 1942 (*4*) the extent of its influence was established. The present study was undertaken to ascertain the efficient application of borax on certain tomato-producing soils.

### Experimental Technique

A series of pots containing a Sassafras sandy loam and a Sassafras sand were established in the greenhouse to which varying amounts of borax were mixed with the soil. The pots were filled by first tamping in 4,000 grams of subsoil and then 10,000 grams of topsoil. The sand had only 1 per cent organic matter and the sandy loam 3.4 per cent. The sandy loam was a rather heavy phase of the Sassafras series and had almost twice the lime requirement of the sand.

The Sassafras sand was limed with sufficient dolomite to give a pH value of 6.1 at the end of the experiment and the sandy loam to pH 6.3. Each soil was fertilized similarly with 12–24–24 (N-P-K) and in sufficient amounts to produce maximum and rapid growth. The lime, borax and one-half of the fertilizer were added to the soil 56 days before the plants were set.

The plants (Rutgers variety) were grown in flats until they were about 3 inches high and transplanted directly to the pots with about one gram of 8–24–8 (N-P-K) plant starter to each plant. A careful check was made from time to time on the injury to the foliage, but since this corresponded so closely with the yield of the crop it will not be shown.

### Results

Fig. 1 and 2 show graphically the efficiency obtained from borax upon the yield of tomatoes in the two soil types. Here the yield of the green weight of fruit in grams is plotted against the pounds of borax applied to the soil. In the sand the 2-pound per acre rate of application of borax gave the largest

[1] Contribution from the Department of Agricultural Research, Campbell Soup Company.

[2] Soil Technologist and Assistant, respectively.

*Figures in parentheses refer to literature cited at the end of the paper.

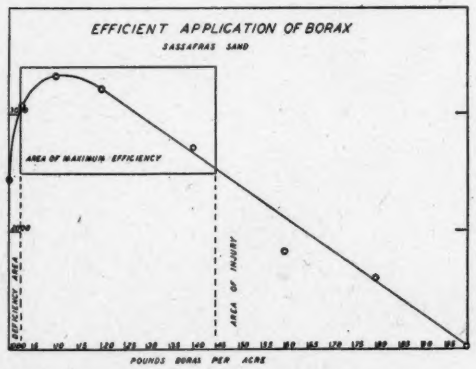



Fig. 1

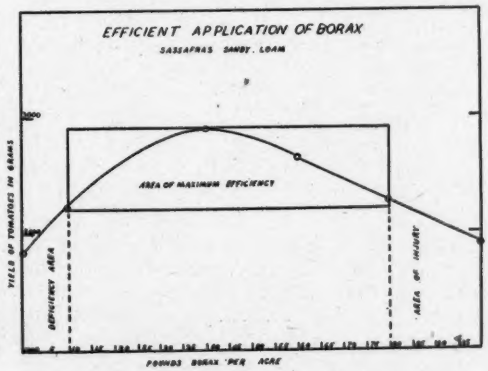



Fig. 2

increase in yield and the 10-pound per acre rate gave the maximum yield. However, injury sufficient to reduce the yield below the no-borax treatment was not reached until the 50-pound per acre rate was added. But, for the Sassafras sandy loam, the maximum yield was obtained with the 40-pound per acre rate and injury only after the 80-pound rate was reached. Whereas 10 pounds of borax per acre was the practical application for the sand, 40 pounds was the practical application for the sandy loam. This is in keeping with results obtained in the field which have been reported previously (*4*).

#### Practical Application

Since the above results obtained under greenhouse conditions have already been established in practical field application, it is believed that they have a true practical application. In a previous publication (*4*) it was recommended that each ton of commercial fertilizer intended for tomato production carry 5 pounds of borax. Furthermore, others (*7*) have established the need for borax in the fertilizer for a variety of other crops grown in New Jersey and recommend that 5 pounds per ton of fertilizer be used. In view of these facts it is again pointed out that many fertilizers should carry borax for maximum crop production.

#### Literature Cited

(*1*) A. C. Dennis and R. W. G. Dennis, "Boron and Plant Life," Part V. *The Fertilizer, Feeding Stuffs and Farm Supplies Journal*, March 17th and 31st, April 14th and 28th, May 12 and 26, 1943.

(*2*) Frank M. Eaton, "Deficiency, Toxicity, and Accumulation of Boron in Plants," *Jour. Agr. Res., 69*:237–277 (1944).

(*3*) J. B. Hester, "A Trace Element Deficiency on the Tomato," *Proc. Amer. Soc. for Hort. Sci., 36:* 744–746 (1938).

(*4*) J. B. Hester and H. F. Hall, "Quality Tomatoes Through Sound Farming Practices," *Dept. Agr. Res., Campbell Soup Co. Bulletin 4* (1942).

(*5*) Pacific Coast Borax Company, *Boron in Agriculture* (1944).

(*6*) E. R. Purvis, "The Present Status of Boron in American Agriculture," *Proc. Soil Sci. Soc. of America, 4*:316-321 (1939).

(*7*) E. Reeve, A. L. Prince and F. E. Bear, "The Boron Needs of New Jersey Soils," *N. J. Agr. Exp. Sta. Bul. 709* (1944).

---

The United States has delivered 20,000 tons of seeds to Russia to replant war-ravaged sections.

---

A waxy corn is being grown in Iowa to offset the loss of tapioca supplies that formerly came from the Dutch East Indies.

## Availability of Ammonium Nitrates

*Bulletin No. 443*, Arkansas Agricultural Experiment Station, entitled "Greater Production Through Research," says concerning 13 years' tests of ammonium nitrate: "A comparison of the results of 13 years from fertilizer mixtures containing ammonium nitrate with the standard mixture, which contained ammonium sulphate, and which resulted in an average increased yield of 421 pounds of seed cotton per acre as a source of nitrogen, shows that two produced significantly larger yields, six produced significantly smaller yields, and 12 produced no significant differences. This shows that the differences in results were caused by a factor other than the availability of the nitrogen in ammonium nitrate in the mixture, and that it is as avilable as nitrogen in ammonium sulphate. A comparison of results from mixtures containing nitrate of soda and urea gives a similar conclusion."

These and other tests are more fully treated in Station *Bulletin No. 450*, entitled "Comparison of Mixed Fertilizers Produced from Various Nitrogen and Phosphoric Acid Sources," of which R. P. Bartholomew is author.

---

## Fertilizer Kills Underwater Weeds

"Underwater weeds, or moss, in farm ponds can usually be controlled by proper fertilization," says Allen M. Pearson, extension fish and wild life specialist of Alabama Polytechnic Institute.

Pond owners confronted with a moss problem are advised to:

1. Apply 200 pounds of 6–8–4 plus 20 pounds of nitrate of soda (or equivalent) for each acre of water, beginning in January and repeating at intervals of from two to four weeks until a satisfactory color is obtained or until the weeds begin to die and float.

2. Do not apply fertilizer to the pond while masses of dead weeds are floating on the pond late in the spring or early in the summer. An oxygen shortage might be caused, resulting in harm to the fish.

3. Apply throughout the summer and fall 100 pounds 6–8–4 plus 10 pounds of nitrate of soda per acre as recommended for fish production.

4. Ponds having an excessive water supply are not suitable for the use of fertilizer.

## More Congressional Bills Affecting Agriculture

The reintroduction of the Hill Bill to empower TVA to build a superphosphate plant at Mobile, Ala., and make TVA an arbiter of a national fertilizer policy and program, has been followed by the introduction of other measures.

Representative Augustus H. Anderson, of Minnesota, has introduced H. R. 295 which seeks to provide experimentation for new uses of agricultural crops.

Representative Wickersham, of Oklahoma, introduced H. R. 346, which seeks to provide means for determining the average cost of each agricultural product having farm value of $20,000,000 during the preceding year. It would determine production costs including interest, taxes, farm wages and a return of 4 per cent on property values and then would compensate the farm operator the equivalent of the average weekly earnings of the industrial worker.

Congressman Lemke has again introduced a bill to regulate the registration, manufacture, labeling and inspection of fertilizers and fertilizer materials shipped in interstate commerce.

---

## New Grade of Ammonium Nitrate Priced

Maximum retail prices for a new Canadian grade of ammonium nitrate containing one unit of nitrogen more per ton than the old grade were announced on February 1st by the Office of Price Administration.

This action, effective February 6, 1945, also includes several minor corrections in the regulation covering fertilizers.

The new grade of ammonium nitrate now being offered to fertilizer mixers in the United States by Canadian producers contains 33.5 per cent nitrogen. In the northern and eastern sections of the country, where most of the new material is expected to be used, the ammonium nitrate will cost $1.70 more a ton at retail than the old 32.5 per cent grade. Since it can be shipped at the same freight rate as the old grade and involves no more handling cost, however, the net cost to the farmer per unit of nitrogen is reduced slightly by introduction of the higher-analysis grade, OPA said.

The amendment also provides that those natural organic nitrogen materials not specifically priced in the fertilizer regulation shall remain subject to the General Maximum Price Regulation, which freezes prices at each seller's highest price during March, 1942.

Interest may be charged on fall shipments of fertilizer to Alabama after December 1st, under the amendment. Through oversight, credit terms in the regulation failed to mention a date after which interest could be charged on fall sales.

A limited number of grades of mixed fertilizer priced under the regulation but not approved by the War Food Administration for general distribution are deleted by the OPA action. The change affects grades in the New England and North Central areas.

Likewise, prices for grades sold in South Carolina and Georgia are footnoted to show which grades are approved in each State. The action was taken, not because OPA is concerned with grade limitation, but to prevent confusion between the price regulation and War Food Order No. 5, which does establish approved grades by States. Because a maximum price appears in the regulation for a grade, it does not necessarily follow that the grade is approved for sale in the State.

---

## Federal Charter Bill Hits Cartels and Interlocking Directorates

Senate Bill S.10, introduced by Senator Joseph C. O'Mahoney of Wyoming, requires that every corporation trade association and every labor organization engaged in interstate or foreign commerce shall obtain a "certificate of statutory compliance." The certificate or charter prohibits a tie-in with any competitor through interlocking financial interests of directors. Each director in the organization must have a bona fide financial interest in the corporation. Monthly meetings of directors and complete records of such meetings are required. There shall be disclosures to all stockholders of all transactions between directors and the corporation and of any dealings by directors in the securities of the corporation.

A copy of every general plan and of every contract with any foreign corporation or foreign national, or with any foreign-controlled corporation or person to effect the transfer of property or other rights, must be filed with the Department of Justice.

Directors are deemed trustees of the stockholders with individual and civil liability of any director to the corporation for any damage caused to the corporate estate

through violation of any Federal law by an act authorized or done by the director.

Failure of a director to attend board meetings for six months forfeits his directorship. One vote for each share of stock is provided in stockholder voting. Reasonable advance notice to stockholders of any proposal, approved by the directors, to be voted on by stockholders involving existing rights of any stockholder or security holder is required. Voluntary payments made by the corporation that provide any charter amendment which alters existing rights of any stockholders or security holders must be approved by the stockholders. Purchase of stock in any corporation principally engaged in a different line of business is prohibited.

Trade associations are required to file a semi-annual report of the services performed and give kind of data collected or disseminated, list its publications, and disclose subject matter of documents published by the association to its members, officers, directors or employees, including full minutes of all meetings of the association's officers, directors and members.

The bill, it is stated, will not be pressed for immediate action if it interferes with major Congressional war plans. The author, it is announced, will welcome constructive criticisms, that the bill is only a "first draft."

## Phosphates on Pasture Increase Beef Production

Prof. R. E. Hunt, of the Virginia Polytechnic Institute, says in *Southern Planter* that the results of three years' cooperative tests in southwestern Virginia show that beef produced from pastures alone and beef produced with a ration of grain graded the same sold for the same price and had the same dressing yield. When superphosphate was added to the pastures, which formerly produced 90 to 100 pounds gain per acre per year, beef production increased to 317 pounds per acre.

## Lead Shortage Critical

The supply of lead sheet, pipe and burning lead for maintenance repairs will probably be considerably smaller in 1945 than it was in 1944. The National Fertilizer Association is urging all fertilizer manufacturers to make an estimate of the amount of each of these types of lead they will need during 1945 and to send this information, together with a statement of the amounts used in 1944, to J. W. Wizeman, chief, Inorganic Branch, Chemicals Bureau, War Production Board, Washington 25, D. C.

## Sulphur Production Increases During 1944

With the growing need for sulphuric acid in munitions, fertilizer, petroleum, and in many other industries that require it in their production, consumption of sulphur reached a record in 1944. Sales were approximately 12 per cent larger than in 1943 according to figures released by the Bureau of Mines, United States Department of the Interior.

After a slow start, production increased to about 300,000 long tons per month, and output for the year, 3,218,156 long tons, was 27 per cent greater than in 1943 and nearly as large as the record total attained in 1942.

As sales exceeded production, industry stocks declined 361,901 long tons. Total stocks at the end of the year were still large—equivalent to over a year's requirements.

In December, 1944 production declined slightly but was 38 per cent higher than in December, 1943. Mine shipments and apparent sales were 23 and 14 per cent lower, respectively, than in the previous month, and 10,698 long tons were added to the stock pile.

Production, mine shipments, apparent sales, and producers' stocks of native sulphur in the United States in selected periods, 1942–1943–1944, in long tons, are shown in the following table.

| Period | Production | Mine Shipments | Apparent Sales* | Producers' Stocks** |
|---|---|---|---|---|
| November, 1944..... | 293,551 | 290,005 | 314,324 | 4,089,622 |
| December, 1944..... | 280,580 | 223,268 | 269,882 | 4,100,320 |
| December, 1943..... | 202,984 | 217,641 | 255,622 | 4,462,221 |
| 1942 | 3,460,686 | 3,132,408 | 3,031,719 | 5,114,486 |
| 1943 | 2,538,786 | 2,953,845 | 3,191,051 | 4,462,221 |
| 1944 | 3,218,156 | 3,518,990 | 3,580,057 | 4,100,320 |

*Calculated from production and change in stocks during the period.
**Producers' stocks at mines, in transit, and in warehouses at end of period.

# IT MAY BE

By SAMUEL L. VEITCH

### War News

Washington is again gaining confidence regarding the war. Early peace in Europe is expected. It is expected Russia will lend a hand in polishing off Japan, which should help shorten the endurance of the Slap-happy Japs. Officially inspired talk that the end of the war in Europe will not affect agriculture and manufacturing—that requirements in the Pacific will increase by the amount that European needs decrease is a lot of "hokus-pokus."

### New WMC Law

New Manpower law is slowly taking shape and will be strongly enforced, unless Berlin should fall within the very near future. The law will not be as toothy as the administration had hoped. Penalties for violation will be provided plus legal authority for ceilings on number of workers permitted to be employed by certain concerns, and the proper procedure to follow to have ceilings raised. What concerns are hoarding labor and where loafing is worse will be known by WMC and local Management-Labor Committees. Congress will leave the job in the hands of WMC and these local Committees.

### War Labor Board

War Labor Board is showing signs of cracking under two years of constant pressure for higher wages. Public members joined with labor recently in approving pay boosts for 195,000 packing house and textile workers. The WLB public members, however, advise President Roosevelt that while there are no present grounds for scrapping the Little Steel formula, "preparatory steps should be taken now to pave the way for a high-wage prosperous post-war economy."

Union officials are threatening to "get what the WLB says is coming to us or else." Packer and textile companies say the pay increase would force a rise in prices. Between them, labor and industry have Vinson "fenced in."

### Tobacco

WFA boosted burley tobacco allocations to cigarette manufacturers to 120 per cent of the amount used by each in the year ended September 30, 1944, but warned that it will not relieve the current cigarette shortage since the tobacco must be aged from 18 to 30 months.

The Federal Trade Commission, completing a two-month survey, reported there is nothing "artificial" about the cigarette shortage, that military and civilian demand in excess of supply has created a real scarcity.

### Farm Employment

Farm employment February 1st, totaling 8,051,000, was 4 per cent under a year earlier, 11 per cent under 1935–39 average.

### Dairy Payments Reduced

A new WFA schedule of dairy subsidy payments calls for a sharp reduction in the rates on whole milk, effective April 1st, and continuing through June 30th. The butter payments will continue the same.

New rates on whole milk will range from 25 to 55 cents a hundred pounds, approximately a fifty per cent slash from present 60 to 90 cents. During April, May and June, the basic rate, exclusive of special drought payments, will be 35 cents a hundred pounds less than at present in all localities.

Continuation of subsidies after June 30th is dependent upon Congressional passage of the Commodity Credit Corporation extension act.

### Thatcher Mystery

Among farmer cooperatives there is increasing speculation as to what William Thatcher and his Farmers' Union Grain Terminal Association intend to do about membership in the National Council of Farmer Cooperatives. At the Council's annual meeting last month arrangements were made for return of Thatcher's group to Council membership. It was expected that the Grain Terminal Association would hold a directors' meeting before the end of January and vote to enter the Council. Apparently nothing has happened up to the present and certain National Council directors are beginning to wonder why the delay. Thatcher, so far as can be found out, has not communicated his intentions to the Council.

**THE AMERICAN FERTILIZER**
ESTABLISHED 1894
PUBLISHED EVERY OTHER SATURDAY BY
WARE BROS. COMPANY
1330 VINE STREET, PHILADELPHIA, PA.

A Magazine international in scope and circulation devoted exclusively to the Commercial Fertilizer Industry and its Allied Industries

PIONEER JOURNAL OF THE FERTILIZER INDUSTRY

A. A. WARE, Editor
C. A. WHITTLE, Associate Editor
K. F. WARE, Advertising Manager
E. A. HUNTER, Southern Advertising Manager
2246 E. Lake Road, N. E.,
Atlanta, Ga.

ANNUAL SUBSCRIPTION RATES

| | |
|---|---|
| U. S. and its possessions, also Cuba and Panama | $3.00 |
| Canada and Mexico | 4.00 |
| Other Foreign Countries | 5.00 |
| Single Copy | .25 |
| Back Numbers | .50 |



Vol. 102 FEBRUARY 10, 1945 No. 3

## *Principal Articles in This Issue*



## A National Fertilizer Policy

With the reintroduction of the Hill Bill in Congress to establish a national fertilizer policy to be administered by the Tennessee Valley Authority, a statement has been issued by a committee representing agencies of the United States Department of Agriculture and the War Food Administration, entitled "A National Policy for Fertilizers and Liming Materials" in which it is held that the United States Department of Agriculture is the logical agency to be given leadership in formulating policies and programs and in obtaining needed action. Secretary of Agriculture Claude Wickard had previously gone on record favoring a retention of fertilizer policies and programs by the U. S. Department of Agriculture. Thus two governmental agencies are vieing with each other for the right to direct fertilizer policies.

Of course, the United States Department of Agriculture has been active for many years developing information on agriculture through State Agricultural Experiment Stations and has carried this information to the farmers through the agricultural extension services of the States. This has been the U. S. D. A.'s policy with respect to fertilizers and a very good national policy it is. It has been a policy of careful scientific consultation of crops to determine their responses to varying kinds and quantities of plant foods under varying soil and climatic conditions. Based on experimental results thus obtained farmers are advised as to the kind and quantity of fertilizers to order from the fertilizer manufacturer. How could that be improved upon as a national fertilizer policy!

Reporting on an estimate made by State and Federal agricultural workers as to the amount of fertilizers needed to balance crop removal, maintain soil resources, and pay farmers to use, the Committee says that it shows 1,100,000 tons of nitrogen (N); 2,700,000 tons of phosphoric acid ($P_2O_5$), and 1,700,000 tons of potash ($K_2O$) are annually required. This is about 200 per cent more than was used in 1944.

The fertilizer industry has been able to meet farmer demands even under wartime conditions and there is no reason to believe it will not be equal to the demands in the future.

Senator Hill of Alabama is an enthusiast on phosphates. So is the fertilizer industry. Phosphates have always been the industry's

main product and this it has always produced and sold at low cost. But the fertilizer industry, as well as agricultural authorities, recognizes that crops cannot feed on phosphorus alone. More superphosphate should be used, but likewise more nitrogen and more potash should be used. The U. S. D. A.'s national policy, it is stated, is to feed crops a balanced ration to replace in the soil all the plant food removed and thus maintain soil resources as against Senator Hill's proposal to phosphate land and let crops exhaust the soil of its other plant food resources.

It is the policy of the fertilizer industry to produce at a fair price, the kind and quantity of fertilizer that will bring the farmer the largest returns, realizing that in doing so it will make a better customer.

The Committee would turn over to private interests and cooperatives the Government-owned nitrogen plants and it is not adverse to the Government entering into the manufacture of fertilizers if necessity arises. But it does not tell how the Government can get revenue without taxes nor how taxpayers can compete with non-taxpayers, nor how private initiative is to be encouraged when the Government engages in the manufacture of fertilizers.

## Leaf Analysis as a Guide to Plant Nutrition

Wide interest is being taken in chemical analysis of leaves of plants to determine the plant-food deficiencies of soils. Techniques involving when to collect leaves, and from what part of the plant they should be taken, may be said to be in process of being developed.

An outstanding success of the use of leaf analysis is reported by the California Packing Corporation, described by P. D. Caldis, A. R. Brown, and R. T. Marks of that organization, from which the following is taken:

"The yield of cling peaches depends on the ability of the tree to size a crop, regulated by thinning. To determine the causes of partial inability on a 3,000-acre ranch near Merced, Calif., leaf analysis was resorted to. Comparative analyses, yearly since 1937, of leaves of peach trees from various blocks of the Merced and neighboring orchards, have revealed that the $K_2O$ content of the Merced ranged between 0.87 and 2.73 per cent, while good yielding and sizing orchards in neighboring counties but of different soil types analyzed 2.72 and 5.19 per cent.

"No symptoms of potash deficiency could be observed and, in many respects, the trees fertilized adequately with nitrogen appeared normal. Applications of potash and phosphorus, either alone or in combinations yearly, at 900 pounds per acre each, have not shown response until single applications of 4,000 pounds of potassium sulphate per acre were made. Without further applications the $K_2O$ content was increased gradually to 2.53 per cent. The mean diameter of the fruit was increased by 2 mm. while the yield was increased by 4.8 tons. A potash survey of the ranch was carried out by means of leaf analysis and the deficient areas treated in 1942."

## Increased Allotment Sulphate of Ammonia

Applicable to the States of Illinois, Wisconsin, Iowa, Minnesota, Missouri, North Dakota, South Dakota, Nebraska, and Kansas, fertilizer manufacturers are receiving an additional allotment of sulphate of ammonia by the War Production Board on request of the War Food Administration. The additional allotment, it is stated, is to be used exclusively in making mixed fertilizers. WPB announces that delivery of the additional assignment can probably not be completed before June, and is conditioned upon production of sulphate of ammonia being maintained at highest levels. WPB also makes clear that buyers must locate suppliers. If delivery is not completed by June 30th, orders for any unshipped tonnage will be canceled.

## Demurrage Charges on Tank Cars

Responding to strong protests, the Interstate Commerce Commission has canceled Service Order 263 which had proposed drastic increases in demurrage charges on tank cars, by issuing Revised Service Order 263 effective January 20th to April 1, 1945, under which demurrage charges are $11.00 per car per day or fraction thereof for each of the first five days following allotted free time, and $22 per day per car for each succeeding day.

The revision reduces any present 48-hour free time to 24 hours, but provides additional free time for adverse weather, bunching and similar inabilities. Sundays and legal holidays are not excluded in computing free time.

## January Tag Sales

Fertilizer tax tag sales in January exceeded January, 1944, by about 100,000 tons for the seventeen reporting States combined. Nine of the twelve Southern States and three of the five Midwestern States reported increases over last year.

The high level of sales in January is due to two factors: the large demand for fertilizer and the early buying. As evidence of the latter factor, January sales were about three times as large as average sales in January were in the period before labor and transportation difficulties made early buying a prime necessity.

In the first seven months of the present fiscal year, July through January, total sales were 4 per cent larger than they were in the corresponding period of last year. Most of this increase was due to larger sales in the Midwest, where all of the States reported increases. The pronounced upward trend in sales in the Southeast also is continuing this year.

FERTILIZER TAX TAG SALES

| | January | | | | July–January | | |
|---|---|---|---|---|---|---|---|
| | 1945 Tons | 1944 Tons | 1943 Tons | Per Cent '43–'44 | 1944–45 Tons | 1943–44 Tons | 1942–43 Tons |
| Virginia | 77,677 | 66,574 | 60,272 | 112 | 264,309 | 235,539 | 165,773 |
| North Carolina | 262,415 | 256,063 | 219,452 | 99 | 581,505 | 590,191 | 431,781 |
| South Carolina | 161,618 | 154,358 | 154,321 | 98 | 342,578 | 349,783 | 261,751 |
| Georgia | 177,895 | 198,018 | 159,843 | 90 | 379,126 | 422,199 | 288,727 |
| Florida | 122,920 | 113,022 | 102,274 | 108 | 538,934 | 497,179 | 384,183 |
| Alabama | 159,750 | 153,600 | 121,050 | 92 | 290,050 | 316,900 | 144,500 |
| Mississippi | 82,065 | 84,000 | 94,164 | 84 | 206,808 | 247,645 | 191,145 |
| Tennessee | 21,584 | 21,288 | 13,738 | 137 | 94,638 | 69,159 | 45,514 |
| Arkansas | 37,200 | 19,358 | 32,700 | 115 | 70,300 | 61,248 | 45,308 |
| Louisiana | 41,261 | 31,600 | 29,400 | 120 | 124,626 | 103,830 | 68,305 |
| Texas | 44,610 | 17,900 | 19,225 | 149 | 113,743 | 76,500 | 45,196 |
| Oklahoma | 4,042 | 4,150 | 4,100 | 128 | 13,599 | 10,585 | 5,541 |
| Total South | 1,193,037 | 1,119,931 | 1,010,539 | 101 | 3,020,216 | 2,980,758 | 2,077,724 |
| Indiana | 43,550 | 24,689 | 49,850 | 109 | 313,142 | 287,944 | 248,439 |
| Illinois | 26,975 | 28,100 | 18,751 | 151 | 110,060 | 72,651 | 38,892 |
| Kentucky | 51,130 | 29,388 | 8,230 | 147 | 115,164 | 78,175 | 37,931 |
| Missouri | 27,028 | 36,962 | 3,059 | 111 | 98,363 | 88,858 | 38,146 |
| Kansas | 7,305 | 4,680 | 50 | 126 | 22,325 | 17,714 | 5,173 |
| Total Midwest | 149,988 | 123,819 | 79,940 | 121 | 659,054 | 545,342 | 368,581 |
| Grand Total | 1,343,025 | 1,243,750 | 1,090,479 | 104 | 3,679,270 | 3,526,100 | 2,446,305 |

# FERTILIZER MATERIALS MARKET

## NEW YORK

**Bad Weather Delays Shipments of Various Fertilizer Materials. Tight Situation Develops in Supply of Sulphate of Ammonia and of Superphosphate. Potash Supplies Appear to be Adequate**

*Exclusive Correspondence to "The American Fertilizer"*

NEW YORK, February 8, 1945.

**Sulphate of Ammonia**

A number of things have combined to cause a temporary shortage of sulphate of ammonia. The demands from mixers have increased and WPB is regulating sales. Added to this, producers are having difficulties getting sufficient cars for their shipments. And finally, numerous shipments have been delayed in transit by weather conditions. Some January shipments are just now coming through.

**Nitrate of Soda**

This material seems to be in relatively adequate supply. Importations of Chilean nitrate are continuing steadily and all supplies of both domestic and imported material are being taken as soon as available.

**Organics**

Feed manufacturers are taking about every pound of available organic materials, at prices beyond the fertilizer range. The few organics not usable for feed purposes are contracted for well in advance of production.

**Superphosphate**

No relief from the shortage of superphosphate seems to be in sight. Producers are still unable to obtain sufficient sulphuric acid to keep production up to par and the manpower situation further limits the present output. December production was 15,000 tons lower than November and almost 40,000 tons smaller than December, 1944.

**Phosphate Rock**

While handicapped by the manpower shortage, phosphate rock producers have managed to supply all the material that acidulators can handle. Transportation has caused a certain amount of trouble in delaying deliveries.

**Potash**

No shortage of muriate of potash has developed and producers seem able to meet all demands for this material. Producers of tobacco fertilizers are having difficulty in getting enough sulphate of potash to take care of their requirements, as a definite shortage in this material has developed.

---

## CHICAGO

**Conditions Unchanged in Fertilizer Organics Market. Demand for Feed Materials Continues**

*Exclusive Correspondence to "The American Fertilizer"*

CHICAGO, February 6, 1945.

Another quiet fortnight appeared in the organic market and conditions remain unchanged. Supplies are not sufficient to meet the steady demand, and prospects of an improvement for the balance of the season are anything but bright.

Demand for feed materials is good, especially for wet and dry rendered tankage at practically ceiling prices—both enjoy a steady call.

Ceiling prices are:

High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, $5.53 per unit ammonia ($6.72 per unit N); blood, $5.53 ($6.72 per unit N); dry rendered tankage, $1.25 per unit of protein, f. o. b. producing points.

---

## CHARLESTON

**Manufacturers Hampered by Bad Weather and Labor Shortage. Increased Demand for Sulphate of Ammonia**

*Exclusive Correspondence to "The American Fertilizer"*

CHARLESTON, February 6, 1945.

Unfavorable weather and shortage of labor in the southeast have caused orders to accu-

mulate at fertilizer factories.

*Organics.*—The situation on these continues extremely tight and now even blood at $5.53 per unit of ammonia ($6.72 per unit N) at northern points is hard to secure.

*Bone Meal.*—There is a strong demand for raw bone meal which cannot be supplied. Domestic is scarce and there has not been any foreign material brought in for months.

*Sulphate of Ammonia.*—Due to the shortage of other materials, sulphate of ammonia is in such demand that it has now become rather scarce.

*Superphosphate.*—Tight situation on this continues and quite a few mixers have not been able to secure what they need.

## Potash Bulletin Issued by U. S. Bureau of Mines

Early exploration and research by the Government and private interests in mining potassium salts, used in chemicals and fertilizer, resulted in the development of a potash industry in the Texas-New Mexico Permian Basin which made the United States independent of foreign sources of potassium at the outbreak of the war in 1939, according to a bulletin released on February 9th by the Bureau of Mines.

Although a search was begun before the first World War to increase the domestic sources of potassium, imports of that product from Europe still supplied "an appreciable proportion" of the American market up to 1939, with Germany furnishing the bulk of these imports.

Approximately 95 per cent of the potash sold in this country is consumed in the form of fertilizers and the remainder as special chemicals, the bulletin pointed out. Most of the potash is mined from polyhalite, a mineral of the Permian Basin consisting essentially of sulphates of calcium, magnesium, and potassium.

Definite indications of polyhalite deposits in the Permian Basin were discovered in 1921 in drill cuttings from oil wells, but it was not until 1926 that deposits adequate to meet all domestic requirements were proved in that area.

Systematic explorations by the Bureau of Mines and the Geological Survey in the Western Texas-New Mexico field were authorized by Congress and a drilling program was started jointly in 1926 when a bill authorizing the work became law. All wells being drilled by private companies also were watched, wherever possible, and cuttings were checked for evidence of potash salts.

Laboratory research to develop methods for the commercial production of salable potash salts from the polyhalite deposits was carried on from 1928 to 1935 at the Nonmetallic Minerals Experiment Station of the Bureau of Mines on the campus of Rutgers University, New Brunswick, N. J.

Data available from Government drilling has been supplemented since 1932 with information on private drilling operations, and the conclusions reached from a study of the Federal core-drilling program have been substantiated.

The Bureau's new bulletin on the development of the potash industry in the Permian Basin contains chapters on mining, crushing, calcination, and extraction of polyhalite for recovery of potassium salts, and on factors controlling the extraction and recovery of potassium and magnesium sulphates from polyhalite. It includes equilibrium data on the salt systems, detailed cost estimates of various extraction processes, a list of patents relating to the treatment of polyhalite, and many charts.

Authors of the bulletin are John E. Conley,

chemical engineer at the Eastern Experiment Station of the Bureau of Mines, College Park, Md., and Everett P. Partridge, Pittsburgh, Pa., former supervising engineer of the Bureau's Station at Rutgers.

Copies of Bureau of Mines Technical Paper 459, "Potash Salts from Texas-New Mexico Polyhalite Deposits," are obtainable only through the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 20 cents per copy. They are not for sale by the Bureau of Mines.

## Results of Some Fertilizer Tests

### Fertilizers on Semi-Arid Lands

Results of fertilizer tests on dry-land regions of Texas, where the annual rainfall is 30 inches or less, has led Dr. Luther G. Jones, of the Texas Agricultural Extension Service, to question the soundness of the claim that fertilizers will not function except under irrigation. Experiments in Frio County revealed that applications of nitrogen and phosphorus helped to give crops a good start and to develop root systems that helped overcome the drought in July and August.

### Potash and Alfalfa

"A top-dressing of potash in the fall to alfalfa can be expected to increase the yield of hay to the extent of 1 ton per acre," states Dr. Robert F. Chandler, Jr., in summarizing 110 experiments in New York, covering a period of two years. "This," he states, "is generally true where lime and superphosphate have been applied where needed and where fertilizers have been used in the crop rotation. An exception is, however, made of Onondaga, Wayne, Monroe and Genessee Counties where the soils do not require potash other than that applied in the rotation."

### Fertilizing Figs

The Florida Agricultural Experiment Station says concerning the fertilization of figs: "It is not uncommon for some fig trees that have had an abundant supply of nitrogen to shed their fruit for the first two or three years. Under such circumstances, it is advisable to reduce the amount of nitrogen and increase the amounts of phosphate and potash in the fertilizer applied to the tree just before growth begins in the spring."

### Heavy Phosphate Applications Create Potash Shortage

Continuous heavy applications of superphosphate to pastures at the Black Belt Experiment Station in Alabama brought about a potash shortage, according to K. G. Baker, superintendent of the station. One plot received 800 pounds of superphosphate, another 400 pounds annually for a period of seven years. For the first seven years the plot receiving 800 pounds per acre produced 50 pounds more beef per acre annually than the 400-pound application, but during the last four years the 400-pound rate outyielded the heavier application by 83 pounds of beef per acre annually.

"After seven years of white clover on the plot receiving 800 pounds of superphosphate, characteristic symptoms of potash deficiency began to appear," says Mr. Baker who concluded that continuous heavy applications of phosphate on the Black Belt soils developed a potash deficiency. This is further confirmed on two other plots over a period of ten years where the annual increase from potash for the first four years was 15 pounds of beef per acre, whereas the increase for the last six years was 80 pounds per acre.

### Borax in Alfalfa Fertilizers

"Fertilizer requirements for alfalfa in Virginia," says T. B. Hutcheson, agronomist at the Virginia Polytechnic Institute, "include

# FLOWS FREELY

## *Saves time and money in fertilizer manufacture*

## INTERNATIONAL POTASH

There's *extra* satisfaction for you in the use of International Potash. It is prepared in the form of clean, dry, free-flowing crystals, and in a mechanical condition which saves time and money in unloading and mixing. Its quality and easy handling—our convenient service—and the availability of various grades of potash from one source of supply are good reasons why it will pay you to depend on International as so many manufacturers do.

**SUL-PO-MAG,** Water Soluble
*SULPHATE OF POTASH MAGNESIA*
**MURIATE OF POTASH**
**SULPHATE OF POTASH**

*International* **MINERALS & CHEMICAL CORPORATION**

**GENERAL OFFICES: 20 NORTH WACKER DRIVE, CHICAGO 6**

INTERNATIONAL POTASH

borax." He says that at least two tons of ground limestone, 700 to 1,000 pounds of 0–12–12 or 2–12–12 fertilizer, and 20 pounds of borax per acre are required. "Where a good stand has been obtained," he says, "yields may be increased and the life of the stand extended by yearly applications of 500 to 700 pounds of 0–12–12 fertilizer containing 40 to 60 pounds of borax per ton. Where manure is available, 6 to 8 tons per acre may be applied, but it should be supplemented with superphosphate and borax."

### Soybean Fertilization

A major limiting factor in soybean production on the Lower Coastal Plain of North Carolina, according to the North Carolina Experiment Station, is potash. The station recommends top-dressing applications of 50 to 100 pounds of muriate of potash prior to the first cultivation. An application of 200 to 300 pounds of 0–10–10 or 0–12–12 per acre at time of planting is recommended, except that after small grain a 3–9–9 fertilizer is advised. Dolomitic limestone applied at the rate of 1,000 pounds is recommended to take care of the lime and magnesia requirements.

### Placement of Cotton Fertilizers

*The 66th Annual Report* of the North Carolina Experiment Station records 604 pounds of seed cotton per acre at the Upper Coastal Plain Experiment Station, with fertilizers placed under the seed, 1,031 pounds with fertilizers placed in bands 2 inches each side of the seed, and 1,157 pounds with fertilizers placed in bands 1 inch each side of the seed. A count of plants one week before thinning or chopping showed twice as many plants with either band method than with fertilizer placed under the seed.

### Strawberry Fertilizers

As a result of tests conducted by the U. S. Department of Agriculture in North Carolina, it has been found that a 5–8–6 mixture is best for North Carolina Coastal Plain soils with rate of application 750 pounds per acre in August and 750 pounds in November.

## Sulphate of Ammonia Production During 1944

Production of by-production sulphate of ammonia and of ammonia liquor reached a new peak during 1944, according to the figures of the U. S. Bureau of Mines. During the past year the output of sulphate reached a total of 814,755 tons and of ammonia liquor a total of 31,665 tons ($NH_3$), compared with 761,270 tons and 34,106 tons, respectively. In 1929, the output of both forms of ammonia, figured in terms of sulphate of ammonia, was 911,251 tons. Figured on the same basis, the 1944 production amounted to more than 973,000 tons.

Production was maintained at relatively stable levels throughout the year, the smallest month being February with 64,556 tons, and the largest, May with 69,728. Sales remain at about the same level as 1943, and consequently there was an increase in stocks on hand at the end of the year from 28,397 tons on December 31, 1943, to 69,013 tons on December 31, 1944.

| | Sulphate of Ammonia Tons | Ammonia Liquor Tons $NH_3$ |
|---|---|---|
| Production | | |
| January | 67,875 | 2,743 |
| February | 64,556 | 2,599 |
| March | 69,712 | 2,771 |
| April | 67,661 | 2,680 |
| May | 69,728 | 2,737 |
| June | 66,521 | 2,433 |
| July | 68,985 | 2,601 |
| August | 68,576 | 2,664 |
| September | 65,484 | 2,631 |
| October | 69,474 | 2,716 |
| November | 67,143 | 2,523 |
| December | 69,040 | 2,567 |
| Total, 1944 | 814,755 | 31,665 |
| Total, 1943 | 761,270 | 34,106 |
| Sales | | |
| Total, 1944 | 776,828 | 29,965 |
| Total, 1945 | 774,815 | 32,327 |
| Stocks on hand | | |
| December 31, 1944 | 69,013 | 890 |
| November 30, 1944 | 71,260 | 676 |
| December 31, 1943 | 28,397 | 991 |

# A Complete Service

THE strategic factory locations of the American Agricultural Chemical Company, as shown on the accompanying map, assure prompt, dependable service for the complete line of products listed below.

We manufacture all grades of Commercial Fertilizers, Superphosphate, Agrinite Tankage, Bone Black, Bone Black Pigments (Cosmic Black), Dicalcium Phosphate, Monocalcium Phosphate, Gelatin, Agricultural Insecticides (including Pyrox, Arsenate of Lead, Calcium Arsenate, etc.), Trisodium and Disodium Phosphate, Phosphorus, Phosphoric Acid, Sulphuric Acid, Salt Cake; and we are importers and/or dealers in Nitrate of Soda, Cyanamid, Potash Salts, Sulphate of Ammonia, Raw Bone Meal, Steamed Bone Meal, Sheep and Goat Manure, Fish and Blood. We mine and sell all grades of Florida Pebble Phosphate Rock.

## FACTORIES

Alexandria, Va.
Baltimore, Md.
Buffalo, N. Y.
Carteret, N. J.
Cayce, S. C.
Chambly Canton, Quebec, Can.
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
East St. Louis, Ill.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Montgomery, Ala.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Searsport, Maine
South Amboy, N. J.
Spartanburg, S. C.
West Haven, Conn.
Wilmington, N. C

## The AMERICAN AGRICULTURAL CHEMICAL Co.

50 Church Street, New York City

## SALES OFFICES

Alexandria, Va.
Baltimore, Md.
Buffalo, N. Y.
Carteret, N. J.
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Columbia, S. C.
Detroit, Mich.
East St. Louis, Ill.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Houlton, Me.
Laurel, Miss.
Montgomery, Ala.
Montreal, Quebec, Can.
New York, N. Y.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Spartanburg, S. C.
Wilmington, N. C.

## Fertilizers and Farm Situation from Agricultural Workers' Reports

### Alabama

The Alabama Agricultural Extension Service says: "Reports indicate that in most areas of Alabama farmers are buying large quantities of fertilizer for use under their 1945 crops."

Concerning top-dressing small grain it says: "For best yields in Alabama, small grain should be top-dressed with 250 pounds of nitrate of soda per acre, or 125 pounds of ammonium nitrate, or 200 pounds of ammonium sulphate per acre.

### South Carolina

The South Carolina Extension Service, Clemson College, says: "Place your orders for your fertilizer today. Labor and transportation are critically short. Farmers should make heavier applications of fertilizers to increase yields and thereby make the best of available labor."

### Mississippi

Mississippi Agricultural Extension Service says through its news service: "By top-dressing old and new pastures with 200 to 300 pounds superphosphate and 1000 to 2000 pounds ground limestone to the acre, cattle will produce at lowest expense and with feeding less hay and grain feeds."

On the farm labor situation in Mississippi, the Extension Service says: "The farmers of the State will pitch their 1945 crops with about 57 per cent of the farm workers they had in 1940. Extension leaders declared that in normal times farmers secured over two million man days of off-the-farm labor that lived in towns but worked on the farm for a livelihood, but this supply has dwindled at least 50 per cent."

### Texas

According to *Extensioner*, organ of the Texas Agricultural Extension Service, the "creeps" of cattle has been overcome by fertilizer applied to the range. S. W. Monroe, county agent of Jasper County, is quoted as saying that 32 farmers undertook demonstrations with phosphate. They report that their cattle chose the fertilized land for grazing. This was believed to indicate that there was mineral deficiency in the soil and that the cattle were seeking to balance their ration by eating grasses on the fertilized soils.

The experience of J. M. Hart, ranchman, who has a large unimproved pasture and a 12-acre fertilized plot, showed that cows on the large unfertilized area developed "creeps," or symptoms of mineral deficiency. When transferred to the smaller, fertilized area and permitted to remain a few weeks, they recovered completely.

On Glenn Flavor's 165-acre pasture, 160 acres were phosphated with an application of lime on 30 acres receiving phosphate. The remaining five acres were untreated. It was noticed that the first choice of the cattle was pasture on the phosphated and limed acres and their second choice was the area receiving phosphate alone, while they left the untreated five acres alone until late fall, turning to it only when drouth had cut short the grazing elsewhere.

### Louisiana

"Farm-to-City Trend," following the war, issued as an editorial from the Louisiana Extension Service, says:

"Three factors account for the trend. One is that the rural birth rate is nearly twice that of the urban areas. Another is the increased efficiency in farming which tends to make some rural people available for other work. Besides, with the development of technology, many processes and services formerly performed by farmers on the farm have been transferred to the cities:

The Agricultural Land Grant Colleges Agricultural Policy Committee's report is cited which says: "It was impossible for Americans to enjoy a high level of living as long as virtually the whole population was needed to produce food. We can raise our standard of living still further as a higher proportion of our people are put to work providing non-agricultural goods and services; leaving only enough in commercial farming to produce abundant food by efficient methods."

*See Page 4*

## Top-dressing Recommended

### Virginia

The January issue of the *Virginia Extension Division News* reports that top-dressing boosts yields and makes the following statement:

"Fertilizer is one of the cheapest products bought by farmers and has contributed greatly to our increased production. In the spring of 1944, fertilizer was 121 per cent of the 1910–14 price; equipment was 130 per cent; farm machinery, 171 per cent; all farm supplies, 175 per cent; feed, 181 per cent; and seed, 273 per cent.

"Farmers increased their use of mixed fertilizers and of nitrogen as top- and side-dresser in 1944, but the foregoing figures indicate that they can afford to use fertilizer still more liberally. The nitrogen helped to increase the yields of small grain, corn, and hay. An application of 150 pounds of nitrate of soda or equivalent per acre will usually increase the yield of wheat 5 to 8 bushels, and corn 10 to 15 bushels per acre. Small grain will respond if nitrogen is applied late in March, but a much larger increase may be expected with a top-dressing in February. Similar treatment on meadows will increase the yield from one-half to one ton."

### South Carolina

W. B. Rogers, superintendent of the Edisto Experiment Station at Blackville, S. C., discusses increasing the efficiency of nitrogenous top-dressers in "Farm for Victory." He states that greatest increases are obtained when the shortage of phosphorus and potash are not the limiting factors. He says: "If maximum returns from nitrogen are desired, sufficient phosphorus and potash must be applied so that these two elements do not become limiting factors in production."

In discussing oats in the Coastal Plain area, he says, "A preliminary application of 300 to 400 pounds of 3–9–9 fertilizer per acre is suggested, in which case the amount of the top-dresser may be increased to 200 to 300 pounds per acre of nitrate of soda or its equivalent."

### Tennessee

*Circular No. 88* of the University of Tennessee Agricultural Experiment Station reports the results of nitrate top-dressings on small grain in Middle Tennessee. These are summarized by L. R. Neel, who says: "At the Middle Tennessee Experiment Station, applications of 100 pounds of nitrate of soda have given an average increase of 14 bushels of barley, 10 bushels of spring oats, 24 bushels of winter oats, 10 bushels of wheat, and 9 bushels of rye. Counting the nitrate at $2.50 per hundred pounds, the fertilizer cost per bushel of increase would be: for barley, 18 cents; spring oats, 25 cents; winter oats, 10 cents; wheat, 25 cents, and rye, 28 cents."

### Arkansas

The Arkansas Cotton Branch Station and the Rice Branch Station found that a top-dressing of oats at the rate of 20 pounds to the acre increases yields 11.7 and 15.8 bushels per acre, respectively. Applications of 40 pounds per acre gave increases of 19.2 and 22.7 bushels per acre, and 60 pounds per acre gave increases of 20.9 and 31.2 bushels, respectively.

---

## Farm Cash Income of 1944

The farm cash income of 1944 set a new record. Farmers received $21,207,000,000 compared with $19,924,000,000 in 1943, the high up to that time. Government payments for soil improvement practices in 1944 amounted to $817,000,000, compared to $672,000,000 in 1943.

---

## Support Prices for Irish Potatoes

Support prices for Irish potatoes produced in 1945 will reflect 90 per cent of the parity price calculated as of January 1, 1945, for early potatoes. The support price will apply only to grades U. S. No. 1 or better, or U. S. Commercial containing not less than 80 per cent of U. S. No. 1 quality. Support prices are effective on the basis of potatoes graded, sacked, and loaded f. o. b. cars.

## State Soil Studies

### Florida pH Studies

Under the title "Soil Reaction (pH)," by G. M. Volk and C. E. Bell of the Florida Agricultural Experiment Station, results of soil reaction studies are recorded in *Bulletin 400.*

This technical bulletin presents under determination of soil pH, the effect of air-drying, effect of soil-water ratio, and effect of stirring the suspension and under control of soil pH, factors in the adjustment and in the maintenance of pH. Significance of soil pH in the retention of exchangeable bases in Florida soils is discussed under pH and base saturation and the retention of potassium and ammonia. Phosphorus solubility and pH also receives consideration.

In the introduction it is stated: "The more fundamental interpretation given of pH is its specific role in certain physio-chemical reactions in the soil."

The bulletin reveals that control of pH under soil conditions of Florida is involved with many factors, some of which involve the solubility and leachability of nitrogen, phosphorus and potassium.

### Terracing in South Carolina

Extension Circular 251, Clemson College, S. C., entitled "Terracing in South Carolina" is announced as issued "to assist agricultural workers, farmers, and others planning terrace systems, running terrace lines, and building and maintaining good terraces. Terraces are safety valves in time of heavy rains, allowing water to move slowly to an outlet, thus preventing the formation of gullies and excessive sheet washing."

### Tennessee Chemical Soil Tests

The State Department of Agriculture of Tennessee in cooperation with the Agricultural Extension Service of the University of Tennessee and other agencies is conducting chemical soil tests at headquarters in Nashville, and reports that during the past six months, farmers located in 54 counties of the State have submitted soil samples for analysis. The service is free. Farmers desiring to have soil samples tested get instructions and containers from their county agricultural agents.

## Change in Georgia Law Concerning Fertilizer Inspectors

A bill to change method of appointing fertilizer inspectors gives the Commissioner of Agriculture authority to employ such inspectors as are necessary to carry out the provisions of the law, and to perform such other duties as may be assigned by the Commissioner of Agriculture, who shall also determine the tenure of office of the inspectors. President of the Senate Gross introduced the bill.

## Wartime Record of Agriculture

Director of War Mobilization James F. Byrnes, reporting to the President and Congress, referred to the wartime achievements of agriculture, by giving percentages of increases from 1940–44 as follows: farm output, 21 per cent; crop acreage, 5 per cent; use of commercial fertilizers, 45 per cent; crop yield per acre, 10 per cent; output per worker, 28 per cent; net farm income, 170 per cent.

## A Farm Report from the Marines

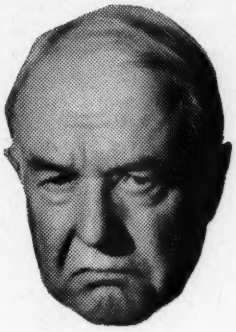
**By Sergeant Phillip N. Joachim, of Washington, D. C,, Marine Corps Combat Correspondent**

*Somewhere in the Pacific*—(*Delayed*)—Native farming methods in the South and Central Pacific are "100 years behind time," according to Marine Quartermaster Sergeant Charley M. Berry (343440), former Farm Security Administration supervisor for Wilson County, Tenn., and "in no way even compare to the ultra-modern farming techniques in the United States.

"Neither is there any outstanding advantage to the perennial warmth of the tropical climate," Berry explained. "It is offset by too many other factors like the torrential rainy seasons which wash away the top soil. And by an excessive growth of crop-damaging bugs.

(Continued on page 30)

"I'll tell you GOOD TIMES ARE COMING!"



"I'll tell you BAD TIMES AHEAD!"

# What's it to you?—PLENTY!

OKAY! Maybe the optimists are right. There'll be good times after the war.

OKAY! Maybe the pessimists are right. We'll have another depression.

What's it to you? PLENTY! It's largely in *your* hands as to which we'll have.

The one way to make it *good times* is to do your share to help keep prices down now!

That means *buying only what you really need.* It means *paying off your debts, saving your money.*

And here's where you're lucky. The same program that helps insure prosperity is also the best possible way to get yourself in shape to take another depression if one does come. So what? *You're right both ways*—if you save your money. *You lose both ways*—if you splurge right now.

Think it over, fella. Then get in there and fight. Read—and observe—the four rules to head off inflation. The war isn't over yet. And the war against *inflation* isn't over yet—by a long shot. Remember World War I? The cost of living rose twice as fast *after* the war as it did during the war itself.

**4 THINGS TO DO to keep prices down and help avoid another depression**

1. Buy only what you really need.
2. When you buy, pay no more than ceiling prices. Pay your ration points in full.
3. Keep your *own* prices down. Don't take advantage of war conditions to ask more for your labor, your services, or the goods you sell.
4. *Save.* Buy and hold all the War Bonds you can afford — to help pay for the war and insure your future. Keep up your insurance.


A United States War message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by this magazine in cooperation with the Magazine Publishers of America.

"Farm production out here will never affect the market back home," Berry, who lives with his parents, Mr. and Mrs. A. H. Berry, of Dyer, Tenn., said. "There's been a lot of talk about the thousands of tons of foodstuffs that can be raised on Pacific Islands. But the distance, coupled with the tremendous cost of developing the islands, would seem to make any such plan impractical, except for local benefit."

Berry, who is attached to the famed Second Marine Division, and who is a veteran of the Saipan-Tinian campaign, currently is garrisoned on an island which raises a good bit of cotton. After a day of inspecting the "crop," the former agricultural official declared "It is only of mediocre staple. These bushes are more like small trees. They seem to be two or three years old, at least. The island hasn't enough available cotton acreage to raise a major export crop, but the natives should be able to raise enough to make themselves self-sufficient as far as cotton goes.

"The soil here," Sergeant Berry continued, "is of limestone origin, much like that of Tennessee. And except in very few spots it's handicapped with even more rocks than the farmland in the hill country surrounding Nashville. The only difference is that the rock here is coral.

"From my observation, I'd say their best crop was sugar cane. There even seems to be a minimum of coconut trees on the island, and the bananas mostly are of a stunted variety, which shows very little cultivation.

"Some of the islands couldn't raise a single edible crop," the Marine went on, "and those that have possibilities would need untold tons of fertilizer. You can give me the rich farmlands back home anytime."

Farming still is Sergeant Berry's "first love," even though he performed his quartermaster duties so splendidly in the Saipan-Tinian operation last June that he has been commended by Major General Thomas E. Watson, commanding general of the Second Marine Division, for his "resourcefulness, initiative, and devotion to duty, under adverse combat conditions."

"During the Saipan operation," the general's citation read, "he was required to assume new and added responsibilities, and operated the office of the Battalion Quartermaster in a highly efficient manner."

Berry, a graduate of the University of Tennessee, where he majored in agriculture, enlisted in the Marine Corps within a matter of days after the Japanese attack on Pearl Harbor. Second only to his desire to see Japan defeated is Berry's wish to "get my feet back on the good soil of the South."

## Urges Volunteers for Farms

Governor Thomas L. Bailey of Mississippi has issued a proclamation on the production of food in which he urged more town and city people to volunteer for seasonal farm work to help overcome the 43 per cent reduction in farm workers.

## Fertilizing Old Pastures

"Old pastures should have lime and phosphate to make more and better grazing. Apply 1000 to 3000 pounds of lime and 200 to 300 pounds of superphosphate to the acre, in February or early March. Seed skimpy stands to lespedeza and dallis grass at the same time. Lightly disk the land, after fertilizing and seeding old pastures."

—*Mississippi Agricultural Extension Service.*

### FARM PRODUCTION SUPPLIES FOR 1945

(Continued from page 8)

I trust it has not escaped the attention of anyone concerned that the Government, the fertilizer industry, colleges and others have been asking farmers to take early delivery of the fertilizer they need for the coming crop season. It's getting late, but anything you can still do to move fertilizer early will be a big help to the industry and the whole country. Due to manpower and transportation problems, failure to move the stuff early could limit the total amount received, and used by farmers in 1945. Early movement improves the chance of meeting farm requirements as fully as supplies of material permit.

This is another tough war year. Its events are no more predictable than those of a football game. We know where we stand now, we can be ready for the breaks, and we can make a few good breaks for ourselves if we work together as a good "heads-up" team. But the most important break is one we can't control. That's the weather. With continued good weather, any shortages of farm production supplies that now seem possible won't hurt us seriously. Bad weather would intensify some supply problems and relieve others. There's no substitute for good weather. I'm keeping one eye on manufacturers' reports and the other on the weather map, and my fingers are all carefully crossed.

# BUYERS' GUIDE • A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"

**This list contains representative concerns in the Commercial Fertilizer Industry, including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc.**
**For Alphabetical List of Advertisers, see page 33.**

**AMMONIA—Anhydrous and Liquor**
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.
Nitrogen Products, Inc., New York City

**AMMONIUM NITRATE SOLUTIONS**
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

**BAG MANUFACTURERS—Burlap**
Bemis Bro. Bag Co., St. Louis, Mo.
Fulton Bag & Cotton Mills, Atlanta, Ga.
Mente & Co., Inc., New Orleans, La.

**BAG MANUFACTURERS—Cotton**
Bemis Bro. Bag Co., St. Louis, Mo.
Fulton Bag & Cotton Mills, Atlanta, Ga.
Mente & Co., Inc., New Orleans, La.

**BAG MANUFACTURERS—Paper**
Bemis Bro. Bag Co., St. Louis, Mo.
Fulton Bag & Cotton Mills, Atlanta, Ga.
Raymond Bag Co., Middletown, Ohio.
St. Regis Paper Co., New York City.

**BAGS—Dealers and Brokers**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Huber & Company, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

**BAG CLOSING MACHINES**
St. Regis Paper Co., New York City.

**BAGGING MACHINES—For Filling Sacks**
St. Regis Paper Co., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Utility Works, The, East Point, Ga.

**BONE BLACK**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Huber & Company, New York City.

**BONE PRODUCTS**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**BORAX AND BORIC ACID**
American Potash and Chem. Corp., New York City.

**BROKERS**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Dickerson Co., The, Philadelphia, Pa.
Hollingshurst & Co., Inc., New York City
Huber & Company, New York City.
Keim, Samuel D., Philadelphia, Pa.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**BUCKETS—Elevator**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**BUCKETS—For Hoists, Cranes, etc.**
Hayward Company, The, New York City.

**CARBONATE OF AMMONIA**
American Agricultural Chemical Co., New York City
DuPont de Nemours & Co., E. I., Wilmington, Del.

**CARS AND CARTS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**CHEMICALS**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Nitrogen Products, Inc., New York City
Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

**CHEMISTS AND ASSAYERS**
Gascoyne & Co., Baltimore, Md.
Shuey & Company, Inc., Savannah, Ga.
Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

**CONDITIONERS AND FILLERS**
American Limestone Co., Knoxville, Tenn.
Keim, Samuel D., Philadelphia, Pa.
Phosphate Mining Co., The, New York City.

**COPPER SULPHATE**
Tennessee Corporation, Atlanta, Ga.

**COTTONSEED PRODUCTS**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**CYANAMID**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

**DRYERS**
Sackett & Sons Co., The A. J., Baltimore, Md.

**ENGINEERS—Chemical and Industrial**
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**FERTILIZER MANUFACTURERS**
American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**FISH SCRAP AND OIL**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

**FOUNDERS AND MACHINISTS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**HOPPERS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**IMPORTERS, EXPORTERS**
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

**IRON SULPHATE**
Tennessee Corporation, Atlanta, Ga.

**INSECTICIDES**
American Agricultural Chemical Co., New York City.

**LIMESTONE**
American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

**LOADERS—Car and Wagon**
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Acid Making and Handling**
Chemical Construction Corp., New York City.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MACHINERY—Ammoniating**
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Elevating and Conveying**
Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MACHINERY—Grinding and Pulverizing**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MACHINERY—Material Handling**
Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MACHINERY—Mixing, Screening and Bagging**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MACHINERY—Power Transmission**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Superphosphate Manufacturing**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**MANGANESE SULPHATE**
McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

**MIXERS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**NITRATE OF SODA**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.

**NITRATE OF SODA—Continued**
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**NITROGEN SOLUTIONS**
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

**NITROGENOUS ORGANIC MATERIAL**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**NOZZLES—Spray**
Monarch Mfg. Works, Philadelphia, Pa.

**PHOSPHATE ROCK**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Wellmann, William E., Baltimore, Md.

**PLANT CONSTRUCTION—Fertilizer and Acid**
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**POTASH SALTS—Dealers and Brokers**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**POTASH SALTS—Manufacturers**
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

**PYRITES—Brokers**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Wellmann, William E., Baltimore, Md.

**REPAIR PARTS AND CASTINGS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**ROUGH AMMONIATES**
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**SCALES—Including Automatic Bagging**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

# BUYERS' GUIDE

**SCREENS**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

**SEPARATORS—Air**
Sackett & Sons Co., The A. J., Baltimore, Md.

**SPRAYS—Acid Chambers**
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**SULPHATE OF AMMONIA**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
McIver & Son, Alex. M., Charleston, S. C.
Nitrogen Products, Inc., New York City
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**SULPHUR**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Texas Gulf Sulphur Co., New York City.

**SULPHURIC ACID**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE—Concentrated**
Armour Fertilizer Works, Atlanta, Ga.
International Minerals & Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**TANKAGE**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**UREA**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**UREA-AMMONIA LIQUOR**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**VALVES**
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Utility Works, The, East Point, Ga.

**ZINC SULPHATE**
Tennessee Corporation, Atlanta, Ga.

## Alphabetical List of Advertisers


# Meet Our NEW Trade Mark!

Our well known Red Indian now makes his appearance against a background of the Americas. And the phrase, "The Salt of the Earth" aptly defines the products he stands for . . . products of Potash Company of America.

There can be no finer product than PCA's Red Muriate. No trade mark can be more important to the fertilizer industry or to the fertilizer user than PCA's new "Salt of the Earth" design. That holds good now . . . and for coming post-war years.



## *POTASH COMPANY of AMERICA*

CARLSBAD, NEW MEXICO

GENERAL SALES OFFICE 50 Broadway, New York, N. Y. • SOUTHERN SALES OFFICE . . . Mortgage Guarantee Building, Atlanta, Ga.

# PAPER BAGS *that save* BOX CARS

PACKAGING in Multiwall Bags offers a space-saving advantage that adds up to box-car proportions.

For example, one ton of a chemical, when packed in Multiwall Bags, will only occupy the approximate space of 1600 lbs. in barrels*. Or, stated another way, *Multiwalls permit a saving of up to 20 per cent storage or shipping space over certain types of metal or wooden containers.* Figure that saving in terms of freight cars or cargo vessels and you have one important reason why many manufacturers are turning to Multiwalls as the solution to more and more of their packaging problems.

### SAVE LABOR, TOO

Multiwall Paper Bags are easier to load and unload...they save costly handling time. They will be designed to withstand specific climatic and transportation conditions in all parts of the world.

These bags are moisture resistant, too—a necessary protection for many products. And because they are siftproof, they eliminate siftage losses in transit, as well as messy storage problems.

Multiwall Paper Bags will be especially made to save time and money for your business. Write for full information today.

See how neatly and compactly Multi Paper Bags fit in a freight car. This kind packing protects products and saves time as well as space.

St. Regis MULTIWALL PAPER BAGS

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

**ST. REGIS PAPER COMPANY**

TAGGART CORPORATION

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

IN CANADA.
St. Regis Paper Co. (Can.) Ltd.
Montreal, Quebec
Vancouver, British Columbia

Boston, Mass. Birmingham, Ala. Dallas, Tex. Denver, Colo. No. Kansas City, Mo. Los Angeles, Calif. New Orleans, La. Franklin, Va. Seattle, Wash. Nazareth, Pa. Toledo, O.

* Report on bulk packaging prepared by Chemical and Metallurgical Engineering.